

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A spinal anchoring device, comprising:
a bone-engaging member adapted to engage bone, the bone-engaging member having a head formed thereon;
a U-shaped receiver member having a distal cavity that movably seats the head of the bone-engaging member and having a proximal recess that is adapted to seat a spinal fixation element, the cavity and the recess including an opening extending therebetween and defined by the U-shaped receiver member, the opening further having a size that prevents passage therethrough of a spinal fixation element seated in the proximal recess; and
a fastening element adapted to mate to the U-shaped receiver member to lock a fixation element relative to the U-shaped receiver member while allowing the U-shaped receiver member to move freely relative to the bone-engaging member.
2. (Withdrawn) The spinal anchoring device of claim 1, wherein the bone-engaging member is pivotally coupled to the head of the U-shaped receiver member such that the U-shaped receiver member pivots along an axis relative to the bone-engaging member.
3. (Withdrawn) The spinal anchoring device of claim 2, further comprising a pin member extending through a distal end of the U-shaped receiver member and through a proximal end the head of the bone-engaging member for pivotally mating the U-shaped receiver member and the bone-engaging member.
4. (Withdrawn) The spinal anchoring device of claim 2, further comprising a surface coating on portions of the bone-engaging member and the U-shaped receiver member that come into contact with one another.
5. (Withdrawn) The spinal anchoring device of claim 4, wherein the surface coating is formed from a material selected from the group consisting of titanium oxide, nitride, and a cobalt-chrome alloy.

6. (Previously Presented) The spinal anchoring device of claim 1, wherein the bone-engaging member is polyaxially coupled to the U-shaped receiver member.

7. (Previously Presented) The spinal anchoring device of claim 6, wherein the head on the bone-engaging member comprises a spherical head that is formed on a proximal end thereof, and wherein the cavity is adapted to polyaxially seat the spherical head of the bone-engaging member.

8-9. (Cancelled).

10. (Previously Presented) The spinal anchoring device of claim 1, wherein the fastening element is adapted to mate to a proximal portion of the U-shaped receiver member to engage and lock a spinal fixation element within the recess in the U-shaped receiver member.

11. (Previously Presented) The spinal anchoring device of claim 10, wherein the fastening element comprises a set screw adapted to mate with corresponding threads formed within at least a portion of the recess in the U-shaped receiver member.

12. (Currently Amended) A spinal anchoring system, comprising:

a spinal fixation element;

a spinal anchoring device having a bone-engaging member with a head formed thereon and a U-shaped receiver member having a cavity that freely movably seats the head of the bone-engaging member in a distal portion of the cavity and that is configured to receive the spinal fixation element in a proximal portion of the cavity, the proximal and distal portions of the cavity being spaced apart by opposed protrusions defined by the U-shaped receiver member that prevent contact between the bone-engaging member and the spinal fixation element; and

a fastening element receivable within the U-shaped receiver member of the spinal anchoring device and being configured, when mated to the U-shaped receiver member, to lock the spinal fixation element to the spinal anchoring device while allowing free movement of the U-shaped receiver member relative to the bone-engaging member.

13. (Withdrawn) The spinal anchoring system of claim 12, wherein the U-shaped receiver member is pivotally coupled to the head of the bone-engaging member.
14. (Withdrawn) The spinal anchoring system of claim 13, further comprising a bearing element formed between the U-shaped receiver member and the bone-engaging member for allowing pivotal movement of the U-shaped receiver member relative to the bone-engaging member.
15. (Withdrawn) The spinal anchoring system of claim 14, wherein the bearing element includes a surface coating adapted to facilitate movement of the U-shaped receiver member relative thereto.
16. (Withdrawn) The spinal anchoring system of claim 15, wherein the surface coating is formed from a material selected from the group consisting of titanium oxide, nitride, and a cobalt-chrome alloy.
17. (Previously Presented) The spinal anchoring system of claim 12, wherein the bone-engaging member is polyaxially coupled to the U-shaped receiver member.
18. (Previously Presented) The spinal anchoring system of claim 17, wherein the head on the bone-engaging member comprises a spherical head formed thereon, and wherein the cavity is configured to receive the spherical head.
19. (Previously Presented) The spinal anchoring system of claim 12, wherein the head of the bone-engaging member is coupled to a distal end of the U-shaped receiver member, and the fastening element is matable to a proximal end of the U-shaped receiver member.
20. (Cancelled).
21. (Previously Presented) The spinal anchoring system of claim 19, wherein the fastening element includes threads formed thereon for mating with corresponding threads formed within at least a portion of the recess formed in the U-shaped receiver member.

22. (Original) The spinal anchoring system of claim 12, wherein the spinal fixation element is selected from the group consisting of a cable, a tether, a rigid spinal rod, and a flexible spinal rod.

23. (Original) The spinal anchoring system of claim 12, wherein the spinal fixation element is formed from a material selected from the group consisting of stainless steel, titanium, non-absorbable polymers, absorbable polymers, and combinations thereof.

24. (Currently Amended) A method for correcting spinal deformities, comprising:
implanting a plurality of anchoring devices into adjacent vertebrae in a spinal column, each anchoring device including a bone-engaging member that is fixedly attached to the vertebra and a U-shaped receiver member having a distal cavity that seats a head formed on the bone-engaging member such that the U-shaped receiver member is freely movable relative to the bone-engaging member and the vertebra;

coupling a spinal fixation element to a proximal recess in the U-shaped receiver member on each anchoring device such that the fixation element extends between each of the adjacent vertebrae, the cavity and the recess of the U-shaped receiver member including an opening extending therebetween and defined by the U-shaped receiver member, the opening further having a size that prevents passage of the spinal fixation element therethrough;

locking the spinal fixation element to the U-shaped receiver member on each anchoring device to maintain the adjacent vertebrae at a fixed distance relative to one another, the spinal fixation element being seated in the opening but prevented from contacting the bone-engaging member, thereby allowing free movement of each U-shaped receiver member relative to each bone-engaging member.

25. (Withdrawn) The method of claim 24, wherein the U-shaped receiver member of at least one of the anchoring devices is movable along a single plane relative to the bone-engaging member.

26. (Previously Presented) The method of claim 24, wherein the bone-engaging member of at least one of the anchoring devices is polyaxially coupled to the U-shaped receiver member.

27. (Previously Presented) The method of claim 24, wherein the head on the bone-engaging member comprises a spherical head formed on a proximal end thereof, and wherein the cavity is adapted to polyaxially seat the spherical head of the bone-engaging member.

28. (Cancelled).

29. (Previously Presented) The method of claim 24, wherein the U-shaped receiver member includes a distal portion movably mated to the head of the bone-engaging member, and a proximal portion having the recess formed therein for seating the spinal fixation element.

30. (Previously Presented) The method of claim 24, wherein the step of locking comprises applying a fastening element to each U-shaped receiver member to engage and lock the spinal fixation element therein.

31. (Original) The method of claim 24, wherein the spinal fixation element is selected from the group consisting of a cable, a tether, a rigid spinal rod, and a flexible spinal rod.

32. (Previously Presented) A spinal anchoring device, comprising:

a bone screw having a head and a shank;

a U-shaped receiver member having a distal seat for receiving at least a portion of the head of the bone screw, a proximal seat formed on an internal surface thereof for receiving a spinal fixation rod, and opposed protrusions that define an opening between the distal seat and the proximal seat;
and

a fastening element adapted to mate to the U-shaped receiver member to seat a spinal fixation rod in the proximal seat, the proximal seat being spaced a distance apart from the distal seat sufficient to allow polyaxial motion of the bone screw relative to the U-shaped receiver member upon seating of the spinal fixation rod in the proximal seat by the fastening element.

33. (Previously Presented) The spinal anchoring device of claim 32, wherein the U-shaped receiver member includes a recess extending from a proximal opening in the U-shaped receiver member, a distal portion of the recess defining the proximal seat for the spinal fixation rod.

34. (Cancelled).

35. (Previously Presented) The spinal anchoring device of claim 33, wherein the fastening element is a set screw having external threads for engaging internal threads provided in the recess.